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10/699,242

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EXAMINER

WU, JIANYE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/699,242	Applicant(s) NALAWADI ET AL.	
	Examiner Jianye Wu	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/30/07 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) ✓ | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claim 1, 3-4, 13-16, 22 and 24** are rejected under 35 U.S.C. 102(e) as being anticipated by Chan et al. (US 20040181616 A1, hereinafter **Chan**).

For **Claim 1**, Chan discloses a method comprising:

obtaining a total memory bandwidth available for a time period (by 122 or 124 of FIG. 1);

obtaining a plurality of bandwidth requests for the time period for a plurality of isochronous devices (any storage device storing audio or video data files, such as 114, 138 and etc. of FIG. 1);

apportioning at least a portion of the total memory bandwidth amongst the plurality of bandwidth requests according to a power managed profile (PMRs, line 4 of [0041]) and a plurality of data rate requirements associated with the plurality of isochronous devices (CD-ROM, DVD, ZIP drive and etc of lines 11-13 of [0083], when playing video and audio data at the same time).

As to **Claim 3**, Chan discloses the method of claim 1, wherein obtaining a plurality of bandwidth requests (CPU 120 of FIG. 1 controls 122 or 124 of FIG. 1 in generating requests) includes polling a plurality of isochronous applications (software programs playing various audio and video streams from IDE devices, lines 11 of [0076]) corresponding to the plurality of isochronous devices.

As to **Claim 4**, Chan discloses the method of claim 1, wherein apportioning includes dividing the total memory bandwidth into a plurality of portions of the total memory bandwidth and satisfying at least two of the plurality of bandwidth requests (such as 114 or 138 for only part of the total memory bandwidth) each with at least one of the plurality of portions of the total memory bandwidth (by 122 or 124 or in combination of FIG. 1 as it is designed to controls time duration and bandwidth for all the devices that needs to access to the data bus).

For **Claim 13**, Chan discloses a device comprising: a bandwidth manager (122 or 124 of FIG. 1) configured to apportion at least a portion of a total memory bandwidth available for a time period, amongst a plurality of bandwidth requests for the time period for a plurality of isochronous devices (CD-ROM, DVD, ZIP drive and etc, lines 12-13 of [0076]; or 114 and 138 of FIG. 1), according to a power managed profile (PMRs, line 4 of [0041]) and a plurality of data rate requirements (lines 8-10 of [0049]) associated with the plurality of isochronous devices.

For **Claim 14**, Chan discloses the device of claim 13, wherein the bandwidth manager is coupled to the plurality of isochronous devices to manage data

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communication between the plurality of isochronous devices and a memory (RAM, 120 of FIG. 1).

As to **Claim 15**, Chan discloses the device of claim 14, wherein a duration of the time period depends on a status of a processor (120 of FIG. 1, where CPU controls 122 and 124).

As to **Claim 16**, Chan discloses the device of claim 14, wherein the plurality of isochronous devices are related to the plurality of isochronous applications run by a processor (120 of FIG. 1), and wherein the data rate requirements are associated with a plurality of time delay (caused by 122 or 124 of FIG. 1) compliance limits for the plurality of isochronous devices.

For **Claim 22**, it is a software claim of claim 1, therefore, is rejected for the same reason as explained in claim 1 above.

As to **Claim 24**, it is a software claim of claim 4, therefore, is rejected for the same reason as explained in claim 4 above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 2, 5-12, 17-21, 23, and 25-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al. (US 20020052990 A1, hereinafter **Chan**) in view of NA et al (US 2001/0028780, hereinafter **NA**).

As to **Claim 2**, Chan discloses the method of claim 1, further comprising:

determining a data transmission policy based on the power managed profile (PMRs, line 4 of [0041]) and the plurality of bandwidth requests (122 or 124 of FIG. 1), the data transmission policy to manage delaying (cause a delay, line 11 of [0080]) transmission of a first isochronous data transmission.

Chan **does not explicitly disclose** combining data of the first isochronous data transmission with data of a second data transmission into a combined data transmission.

NA teaches combining data of the first isochronous data transmission with data of a second data transmission into a combined data transmission (a multi-program transport stream isochronous packets, lines 2-3 of claim 10; where each program has a isochronous, and streams from multi-programs are combined to form a new stream). Also to a person skilled in the art, Chan's disclosure actually implicitly teaches the combination of 2 isochronous data streams into one (an isochronous data stream, such as audio, from 114 of FIG. 1 and another isochronous data stream, such as video, from 138 of FIG. 1 into one data stream in data bus 116 of FIG. 1).

Chan and NA teach are in the same field of endeavor, NA discloses additional features such as multi-program (line 2 of claim 10), which can provide more functionalities and features.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use NA to modify Chan to combine two isochronous data stream into one data stream due to benefit of more functionalities and features to the system.

For **Claim 5**, Chan discloses a method comprising:

delaying (cause a delay, line 11 of [0080]; 124 of FIG 1 controls data traffic and it will delay a isochronous data transmission if its bandwidth request can not be granted) transmission of a first isochronous data transmission (a data stream from 118 or 138 of FIG. 1) having media data to be transmitted to or from a first isochronous device (one of IDE devices, such as 114 or 138 of FIG. 1);

Chan **does not explicitly disclose** appending the first isochronous data transmission with a second isochronous data transmission having media data to be transmitted to or from the first isochronous device into a combined data transmission, wherein appending is performed according to a data transmission policy.

NA teaches appending data of the first isochronous data transmission with data of a second data transmission into a combined data transmission (a multi-program transport stream isochronous packets, lines 2-3 of claim 10; where each program has a isochronous, and streams from multi-programs are combined to form a new stream). Also to a person skilled in the art, Chan's disclosure actually implicitly teaches the

combination of 2 isochronous data streams into one (an isochronous data stream, such as audio, from 114 of FIG. 1 and another isochronous data stream, such as video, from 138 of FIG. 1 into one data stream in data bus 116 of FIG. 1).

Chan and NA teach are in the same field of endeavor, NA discloses additional features such as multi-program (line 2 of claim 10), which can provide more functionalities and features.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use NA to modify Chan to combine two isochronous data stream into one data stream due to benefit of more functionalities and features to the system.

5. As to **Claim 6**, Chan and NA in combination disclose the method of claim 5, Chan further discloses the method comprising: identifying a plurality of transmission time periods during which to transmit a plurality of combined isochronous data transmissions, each combined isochronous data transmission having media data (129 of FIG. 6) from at least two isochronous data transmissions (412 of FIG. 6).

As to **Claim 7**, Chan and NA in combination disclose the method of claim 6.

Chan and NA **do not explicitly disclose** the method further comprising: selecting a time to transmit the combined data transmission, wherein selecting includes selecting one of a transmission time of an *opportunistic data transmission* and a transmission time of one of the plurality of combined isochronous data transmissions.

However, by definition of *isochronous* data transmission isochronous data need to be transmitted within a given period of transmission time (Office notice). The given

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period of time can be divided into two parts: first part is the time that isochronous data transmission needs to be transferred, and the second part of time can be use for other data. One skilled in the art would be motivated to use the second part of time for opportunistic data transmission for the benefit of efficiency.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine isochronous data transmissions with opportunistic data transmission for the benefit of efficiency.

As to **Claim 8**, Chan and NA in combination disclose the method of claim 6.

Chan and NA **do not explicitly disclose** wherein the opportunistic data transmission comprises one of an asynchronous data transmission and a third isochronous data transmission.

However, the second part of the given time can be use the second part of time can be use for the opportunistic data transmission (explained above in claim 7) that comprises one of an asynchronous data transmission and a third isochronous data transmission, when the principle applied to the given time is recursively applied to the second part of the given time.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine isochronous data transmissions with opportunistic data transmission comprising one of an asynchronous data transmission and a third isochronous data transmission for the benefit of efficiency.

As to **Claim 9**, Chan and NA in combination disclose the method of claim 5.

Chan and NA **do not explicitly disclose** the method further comprising: wherein the data transmission policy reduces a first frequency of transmission times related to transmitting the first isochronous data transmission to a less frequent second frequency of transmission times related to transmitting the combined data transmission.

However, the data transmission policy (by 124 of FIG. 1 of Chan) can easily be set to reduce a first frequency of transmission times related to transmitting the first isochronous data transmission to a less frequent second frequency of transmission times related to transmitting the combined data transmission (by system Controller IC, 122 of FIG. 1) for the benefit of saving power assumption (line 3 of [0003]), as soon as the time requirements of isochronous data transmission are met for both data streams.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine isochronous data transmissions with opportunistic data transmission for the benefit of saving power assumption.

As to **Claim 10**, Chan and NA in combination disclose the method of claim 5, Chan further discloses the method comprising: one of reading media data of the combined data transmission from a memory (part of RAM 120 of FIG. 1) and writing media data of the combined data transmission to a memory (another part of RAM 120 of FIG. 1).

As to **Claim 11**, Chan and NA in combination disclose the method of claim 5,

Chan and NA **do not explicitly disclose** the method further comprising:
delaying transmission of the second isochronous data transmission.

However, the data transmission policy (set by 124 of FIG. 1 of Chan) can easily be set to delay transmission of the second isochronous data transmission for the benefit of saving power assumption (line 3 of [0003]), as soon as the time requirements for the second isochronous data transmission are met.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to delay transmission of the second isochronous data transmission for the benefit of saving power assumption.

As to **Claim 12**, Chan and NA in combination disclose the method of claim 5,

Chan and NA **do not explicitly disclose** the method further comprising:
transmitting the combined data transmission prior to expiration of a time delay compliance limit.

However, the data transmission policy (set by 124 of FIG. 1 of Chan) can easily be set to transmitting the combined data transmission prior to expiration of a time delay compliance limit to ensure the proper transmission.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to delay transmission of the second isochronous data transmission for the benefit of reliable transmission.

For **Claim 17**, it is a device claim of claim 5, therefore, is rejected for the same reason as explained in claim 5 above.

For **Claim 18**, it is a device claim of claim 8, therefore, is rejected for the same reason as explained in claim 8 above.

As to **Claim 19**, Chan discloses the device of claim 18, wherein the third isochronous data transmission is to be transmitted to or from a second isochronous device (another software program running on the computer 100 of FIG. 1 requiring a video/audio data stream from another IDE device).

As to **Claim 20**, Chan discloses the device of claim 17, further comprising: one of a processor (CPU 120 of FIG. 1) and a (data bus 116 of FIG. 1) coupled to a memory (RAM 120 of FIG. 1), wherein the combined data transmission is read from or written to the memory via the processor or the data bus (computer system 100 running software program for playing/recording video/audio data streams).

As to **Claim 21**, Chan discloses the device of claim 17, wherein the media data of the first and second isochronous data transmission include one of digital audio data and digital video data (computer system 100 running software program for playing/recording video/audio data streams).

As to **Claim 23**, it is a software claim of claim 2, therefore, is rejected for the same reason as explained in claim 2 above.

For **Claim 25**, it is a software claim of claim 5, therefore, is rejected for the same reason as explained in claim 5 above.

As to **Claim 26**, it is a software claim of claim 6, therefore, is rejected for the same reason as explained in claim 6 above.

As to **Claim 27**, it is a software claim of claim 7, therefore, is rejected for the same reason as explained in claim 7 above.

As to **Claim 29**, Chan discloses the system of claim 28.

Chan **does not explicitly disclose** wherein the data transmission policy further: identifies a plurality of transmission time periods during which to transmit a plurality of combined isochronous data transmissions, and selects a time to transmit the combined data transmission between one of a transmission time of an asynchronous data transmission, a third isochronous data transmission, and a transmission time of one of the plurality of combined isochronous data transmissions.

However, by definition of *isochronous* data transmission isochronous data need to be transmitted within a given period of transmission time (Office notice). The given period of time can be divided into two parts: first part is the time that isochronous data transmission needs to be transferred, and the second part of time can be use for other data. One skilled in the art would be motivated to use the second part of time for opportunistic data transmission for the benefit of efficiency.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine isochronous data transmissions with opportunistic data transmission for the benefit of efficiency.

As to **Claim 30**, Chan discloses the system of claim 29.

Chan **does not explicitly disclose** wherein the data transmission policy further: transmits an opportunistic data transmission prior to expiration of a transmission time period, the opportunistic data transmission having media data from at least two isochronous data.

However, by definition of *isochronous* data transmission isochronous data need to be transmitted within a given period of transmission time (Office notice). The given

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period of time can be divided into two parts: first part is the time that isochronous data transmission needs to be transferred, and the second part of time can be use for other data. One skilled in the art would be motivated to use the second part of the time for opportunistic data transmission due to the benefit of efficiency.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine isochronous data transmissions with opportunistic data transmission for the benefit of efficiency.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jianye Wu whose telephone number is (571)270-1665. The examiner can normally be reached on Monday to Thursday, 8am to 7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jianye Wu

6/20/07

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